

REMARKS

Applicants filed a preliminary amendment dated December 11, 2003 making corrections to several paragraphs on each of pages 9-13 respectively, of the specification. Unfortunately, several of these contained typographical errors e.g. not using the correct symbol for the Greek letter (ρ) and with the denominator of the fraction $A_{(NaI)}$ not properly placed as a denominator in the formula on page 11 of the specification. In addition, in the second paragraph on page 10 of the specification, the deleted formula was not properly replaced as herein indicated by the substituted formula.

The rejection of claims 16-23 under 35 USC 112, first paragraph as failing to comply with the enablement requirement is respectfully traversed.

The present invention relates to the same field as set forth in the cited reference Boudan et al (USP 5,262,947) cited by the Examiner namely the measurement of radioactive elements but is more particularly related to a process for simulating the detection of radiation emitted from radioactive objects.

The actual software per se as used in the computer 26 can be readily programmed by a software programmer from the process steps, formulas and explanation taught in the application. The software itself is not the subject of the invention. It is the simulation process which applicant is claiming as is set forth in claims 16 and 17. The measurement process taught in US Patent No. 5,262,547 is likewise dependent upon software not taught in the patent but readily programmable from the teaching of the specification.

Claim 16 parallels the process as explained on page 6 starting from line 13 in which:

the first step of memorizing the radioactive emission spectra representative of the radioelements or mixes of radioelements corresponds to the requirement in (a), that

the radioactive emission spectra is representative of some radioelements or their mixes 26 as set forth on lines 16-18 of page 6;

the second step of determining the detection characteristics corresponds to lines 18-21 identified by the paragraph (b);

the step of determining the operating characteristics of received radiation corresponds to the step (c) as recited on page 6, lines 21-25; and

the step of choosing the radioelements or mixes of radioelements from the radioelements whose radioactive emission spectra are memorized and which are representative of the contents of the objects followed by using the detection characteristics of the determined radiation and the operating characteristics of the received radiation to reproduce the radiation emitted for the chosen radioelements or mixes of radioelements for developing a simulated response to detected radiation in which the objects are nuclear fuel elements corresponds to the explanation in the last paragraph on page 6 through page 8 line 12.

As further explained on page 7, starting from line 7, the software provides a calculation of the count number to reproduce the count number of a real pellet. From the composition of the isotope and percent of each radioelement in each pellet, the simulation calculates the activity for each isotope contributing to the spectrum of isotopes to form a simulated spectrum for each contributing isotope in the spectrum as explained on page 7 lines 15-25. The response of the detector is then simulated as is further explained on page 7, lines 25-34 through page 8.

Accordingly, applicant believes that the subject matter contained in claim 16 is sufficiently described in the specification to enable one skilled in the art to practice the process, using the detailed explanation and formulas as are set forth on pages 9-13 respectively.

Claims 17-24 are all dependent claims which depend from claim 16 and do not add any steps to claim 16 which do not satisfy the enablement requirement.

Once again, applicant is not claiming the software used by in the computer 26, but is instead directed to a series of process steps, which one skilled in the art could readily perform based upon the description in the application.

The rejection of claims 16-23 under 35 USC 112, second paragraph, is respectfully traversed.

The examples of calculation loops that may be used to simulate the response of the detector D, for the radioactive isotopes uranium and plutonium is set forth on pages 9-13, respectively. However, any person skilled in the art could readily adapt these examples to other radioactive materials. The simulation method as set forth in the process claims 17-24, are not dependent upon any selected radioactive elements. Accordingly, the rejection of claims 16-23 under 35 USC 112, second paragraph should be withdrawn.

The rejection of claims 16-23 under 35 UCS 103(a) as being unpatentable over the admitted prior art as set forth on pages 1 and 2 is respectfully traversed. Pages 1 and 2 of the specification do not teach the simulation method as set forth in claim 16 for simulating the response of a radiation detector. The reference in the specification to prior art is directed to a preliminary calibration for a gamma radiation measurement system, as described for example in EP A 0009450, and not to a method of simulation as defined in claim 16.

As explained on page 2, lines 4-8, the preliminary calibration requires not only a large number of measurements, but an equally large number of calibration rods representative of these typical situations which the present invention overcomes by replacement using a simulation method. Moreover, the simulation method of the present invention does not “merely automate a manual activity”. The concept of simulating of

the response of the measurement system detector was not known in the prior art and is therefore of itself novel.

The Examiner has evidently interpreted the present invention as a combination of individual steps, each of which the Examiner draws an analogy to a mechanical or manual activity. This is a piecemeal evaluation of the invention, which has nothing to do with a simulated process and when taken as a whole is not an acceptable basis for determining patentability of an invention under 35 USC 103. Accordingly, the rejection of claims 16-23 under 35 USC 103, should be withdrawn.

Reconsideration and allowance of claims 16-24 is respectfully solicited.



Respectfully submitted,

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